CLAIMS

1. A squaring cell comprising:

a first exponential current generator for generating a first current responsive to an input signal; and

a second exponential current generator for generating a second current responsive to the input signal;

wherein the first and second exponential current generators are coupled together to combine the first and second currents.

2. A squaring cell according to claim 1 wherein each of the exponential current generators includes:

a constant current stack coupled to a first input terminal; and

a variable current stack coupled to a second input terminal and the constant current stack.

3. A method for squaring a signal comprising:

generating a first current which varies exponentially responsive to the signal such that the first current increases when the signal increases;

generating a second current which varies exponentially responsive to the signal such that the second current decreases when the signal increases; and

combining the first and second currents.

4. A method according to claim 3 further including scaling the first and second currents responsive to a control signal.

5. A method according to claim 3 further including altering the first and second currents.

6. A multiplier comprising:

a first exponential current generator for generating a first current responsive to a first input signal and a second input signal;

a second exponential current generator for generating a second current responsive to a third input signal and a fourth input signal;

a third exponential current generator for generating a third current responsive to the first input signal and the fourth input signal; and

a fourth exponential current generator for generating a fourth current responsive to the third input signal and the second input signal;

wherein the first and second exponential current generators are coupled together to combine the first and second currents; and

wherein the third and fourth exponential current generators are coupled together to combine the third and fourth currents.

7. A multiplier according to claim 6 wherein each of the exponential current generators includes:

a constant current stack coupled to a first input terminal; and

a variable current stack coupled to a second input terminal and the constant current stack.

8. A method for multiplying a first signal and a second signal, wherein the first input signal is the difference between a first signal and a third signal, and the second input signal is the difference between a second signal and a fourth signal, the method comprising:

generating a first current which varies exponentially responsive to the first signal and the second signal;

generating a second current which varies exponentially responsive to the third signal and the fourth signal;

generating a third current which varies exponentially responsive to the fourth signal and the first signal;

generating a fourth current which varies exponentially responsive to the second signal and the third signal;

combining the first and second currents; and

combining the third and fourth currents.

9. A method according to claim 8 wherein:

combining the first and second currents includes summing the first and second currents; and

combining the third and fourth currents includes summing the third and fourth currents.

10. A squaring cell comprising:

a first exponential current generator for generating a first current responsive to an input signal; and

a second exponential current generator for generating a second current responsive to the input signal;

wherein the first and second exponential current generators are coupled together to combine the first and second currents;

wherein each of the exponential current generators comprises a constant current stack coupled to a first input terminal, and a variable current stack coupled to a second input terminal and the constant current stack;

wherein each constant current stack comprises a first emitter-follower transistor coupled to a first input terminal, a diode-connected transistor coupled to the emitter follower transistor, and a current source coupled to the diode-connected transistor;

wherein each variable current stack comprises a second emitter-follower transistor coupled to a second input terminal, and a fourth transistor coupled between the second emitter-follower transistor and the diode-connected transistor; and

wherein each constant current stack further comprises a resistor coupled between the base and collector of the diode-connected transistor.

11. A squaring cell according to claim 10 wherein each variable current stack further comprises a second resistor coupled between the second emitter-follower transistor and the fourth transistor.